ACC NR: AT6036424

initial alloy after this aging had a tensile strength of 40.5 kg/mm^2, a yield strength of 37.0 kg/mm^2, and an elongation of 17%. The tests showed that homogenization had little or no effect on the mechanical properties of Al-Zn-Mg alloys. Small quantities of refractory elements added to the initial alloy had a small but noticeable effect on the mechanical properties bu' greatly improved the corrosion resistance, especially zirconium and zirconium com' ned with titanium. The mechanical properties of alloys microalloyed with Zr or Zr + Ti were: tensile strength 45.2 and 39.5 kg/mm^2, yield strength 39.0 and 35.8 kg/mm^2, and elongation 14 and 17.2%, respectively. The initial Al-Zn-Mg alloy had a very low resistance to stress corrosion when naturally aged (service life 6 days) and low corrosion resistance when artificially aged (service life from 42 to 76 days). In the majority of cases, microalloying increased the service life up to 200 days. The beneficial effect of refractory metals on corrosion resistance increased with higher alloying. The effect of microalloying on the temperature and kinetics of recrystallization was insignificant. In the initial Al-Zn-Mg alloy the recrystallization was completed during heating to about 320C. In alloys containing zirconium, the recrystallization began at 310C and was not complete at 500C. Orig. art. has: 4 figures and 2 tables.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 003/ ATD PRESS: 5107

Card 2/2

ACC NR AT6036425 (N) SOURCE CODE: UR/2536/66/000/066/0157/0165

AUTHOR: Kirpichnikov, K. S. (Candidate of technical sciences); Kulakov, V. I. (Engineer)

ORG: none

TITLE: Effect of adding minute amounts of refractory elements on the structure and properties of ingots of aluminum alloy containing 5% Zn and 2% Mg

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 66, 1966. Struktura i svoystva aviatsionnykh staley i splavov (Structure and properties of aircraft steels and alloys), 157-165

TOPIC TAGS: zinc containing alloy, magnesium containing alloy, aluminum base alloy, refractory metal, metal grain structure, metal property/A00 aluminum

ABSTRACT: 25 ingots of A00 aluminum combined with 5% pure Zn and 2% pure Mg and minute amounts of various refractory elements (0.005-0.1% Zr, 0.005-0.1% Ti, 0.005-0.1% Be, 0.005-0.050% Cr, 0.005-0.050% Mn) were subjected to microstructural analysis and mechanical tests. Part of the ingots was homogenized in a furnace with forced air circulation at 450-470°C. It was established that all these elements, even if added in minute amounts, markedly

Card 1/3 UDC: 669.017:669.71

influence the structure and properties of the ingot. Zr in amounts of up to 0.05 at.% increases the size of the macrograin, reduces the size of the dendritic cell, slightly enhances the hardness of the ingot and microhardness of the solid solution in homogenized state, and reduces homogenization time. Ti, like Zr, also reduces the dimensions of the dendritic cell, but unlike Zr, it has an opposite effect on macrograin size, hardness, microhardness of the solid solution and homogenization time. Be sharply reduces the intracrystalline segregation and homogenization time of the ingot. The effect of Be in many cases coincides with the effect of Zr and is opposite to the effect of Ti. Thus, e.g. Ti reduces the hardness of the Al-Zn-Mg alloy in cast state by 4-5 H_B units, whereas Be increases hardness by 3-5 units and Zr also increases it, though to a less significant extent (Fig. 1). This may be to some extent attributable to the fact that Zr and Be have metallic radii which sharply differ from the metallic radius of Ti, whereas the metallic radius of Ti is similar to that of Al. In the ingots to which more than one refractory element was added, the observed effects were diluted if not neutralized. Orig. art. has: 5 figures, 2 tables.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000927320015-2"

ACC NR: AT6036425

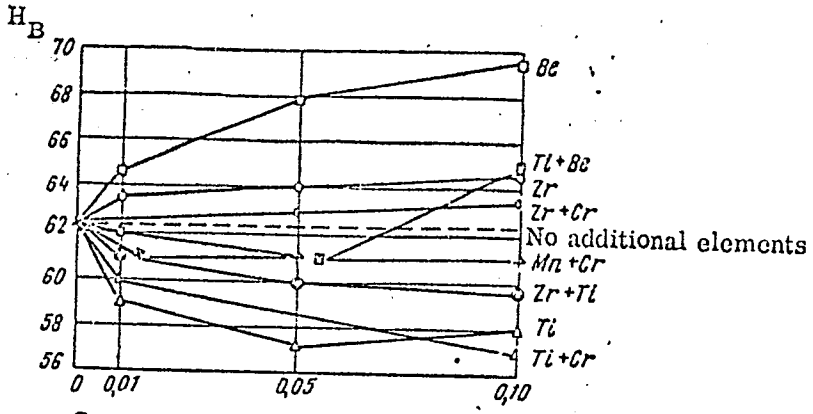

Fig. 1. Mean hardness of the Al-Zn-Mg alloy in cast state as a function of its content of additional elements

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003

Card 3/3

KULAKOV, V.M.

Selecting the safety factor in calculations of petrochemical apparatus for strength. Mash. i neft. obor. no.3:10 '64. (MIRA 17:5)

1. Voronezhskiy filial Gosudarstvennogo proyektnogo i nauchno-issledovatel'skogo instituta promyshlennosti sinteticheskogo kauchuka.

KULAKOV, V.M.

Reducing expenditures on stainless and acid-resistant steels in mixing devices. Mash. i neft. obor. no.4:17-19 '64.
(MIRA 17:6)

1. Voronezhskiy filial Gosudarstvennogo proyektnogo i nauchno-issledovatel'skogo instituta promyshlennosti sinteticheskogo kauchuka.

ARKHAROV, Aleksey Mikhaylovich; BUTKEVICH, Konstantin Stefanovich; GOLOVINTSOV, Andrey Grigor'yevich [deceased]; KULAKOV, Viktor Mikhaylovich; MARFENINA, Irina Vasil'yevna; MIKULIN, Yevgeniy Ivanovich; STOLPER, Mikhail Borisovich; Prinimali uchastiye: BAKLANOVA, V.G.; GRIDIN, V.B.; PETROVSKIY, Yu.V., red.

[Low-temperature equipment] Tekhnika nizkikh temperatur. Moskva, Energiia, 1964. 447 p. (MIRA 17:12)

83669

S/048/60/024/009/002/015
B013/B063

24.6720

AUTHORS: Baranov, S. A., Zelenkov, A. G., Kulakov, V. M.

TITLE: Investigation of the Fine Structure of the Alpha Radiation of U^{234} and U^{235}

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 9, pp. 1035 - 1040

TEXT: The authors studied the fine structure of the alpha spectra of U^{234} and U^{235} by means of a large magnetic spectrograph with double focusing (Refs. 1 and 2) in the energy range 4150 ÷ 4800 kev. A uranium target enriched in U^{235}, which was produced by vacuum evaporation, served as the source. The target had a thickness of ~10 $\mu g/cm^2$. The spectrograph was calibrated with a group of U^{234} alphas. This group corresponds to the transition of Th^{230} to the ground state. Three well-known groups corresponding to the transitions to the rotational levels of

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83669

Investigation of the Fine Structure of the Alpha Radiation of U^{234} and U^{235}

S/048/60/024/009/002/015
B013/B063

Th^{230} (0^+, 2^+, and 4^+) were found in the α-ray spectrum of U^{234} (Fig. 1 and Table 1). The latter transition (4^+) was observed for the first time by means of a spectrograph. The values obtained for the energies and the relative intensities of the above-mentioned groups are in good agreement with the results of Refs. 3 - 6. The results of the investigation of the fine structure of the α-decay of U^{235} are given in Figs. 1 - 3 and Table 2. 13 groups of alphas were found altogether. The results published in the present paper do not contradict those obtained by means of an ionization chamber (Refs. 7 and 8), but differ considerably from the results of Refs. 9 - 11. This is especially true of groups of high intensity (Fig. 2). The analysis of the data obtained indicates that the fine-structure groups of the α-spectrum of U^{235} correspond to the transitions to the levels of four- or five single-particle states of Th^{231}. An energy-level scheme of the Th^{231} nucleus is suggested (Fig. 3). However, this scheme cannot make a claim to finality. The determination of a reliable scheme would require

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Investigation of the Fine Structure of the Alpha Radiation of U^{234} and U^{235}

S/048/60/024/009/002/015
B013/B063

further experimental data, especially on the spectrum of conversion electrons. The authors thank V. V. Beruchko and A. I. Timoshinov for their assistance in the measurements, and V. F. Gorbunov, V. P. Zakharova, and V. K. Selikhov for their help in the preparation of sources. There are 3 figures, 2 tables, and 21 references: 7 Soviet.

Card 3/3

BARANOV, S.A.; KULAKOV, V.M.; SAMOYLOV, P.S.; ZELENKOV, A.G.; RODIONOV, Yu.F.; PIROZHKOV, S.V.

Fine structure of α-radiation from Pa^{231} and energy level scheme of the Ac^{227} nucleus. Zhur. eksp. i teor. fiz. 41 no.5:1475-1483 N '61. (MIRA 14:12)

(Protactinium—Decay)
(Actinium) (Quantum theory)

31769
S/056/61/041/006/008/054
B108/B138

24.6400

AUTHORS: Baranov, S. A., Kulakov, V. M., Samoylov, P. S., Zelenkov, A. G., Rodionov, Yu. F.

TITLE: The radioactive decay of Np^{237}

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6(12), 1961, 1733-1739

TEXT: The authors studied the radioactive decay of Np^{237} by means of magnetic double-focusing α- and β-spectrometers, spectrometric proportional counters, scintillation spectrometers, and other device described in previous papers (e.g. P. S. Samoylov. PTE, 6, 33, 1959). The α-spectrum from Np^{237} is highly complex, consisting of 20 monoenergetic lines (Table 1). The resolution of the β-spectrum was rather poor owing to the low activity and thickness of the source. Data on new γ-transitions for Pa^{233} as determined from the electron and gamma spectra are given in Table 2. An energy level scheme for Pa^{233} is constructed on the basis of

Card 1/2

The radioactive decay of Np^{237}

the data obtained (Fig. 2) which is not, however, regarded as complete The authors thank S. N. Belen'kom, K. I. Merkulova, A. A. Arutyunov, Yu. I. Dmitriyev, and the student at MIFI, Yu. I. Filenko for help as well as G. I. Khlebnikov for the radiochemical purification of Np^{237}. There are 2 figures, 2 tables, and 24 references: 6 Soviet and 18 non-Soviet. The four most recent references to English-language publications read as follows: D. Strominger, J. M. Hollander, UCRL-8289, Berkeley, California, 1958; F. Stephens et al. Phys. Rev., 113, 212, 1959; J. Hubbs, J. Winicur, Bull. Am. Phys. Soc., 11, 319, 1958; J. Hamilton et al. UCRL-9438, Berkeley, California, 1960.

SUBMITTED: June 21, 1961

Legend to Table 1: (1) forbiddenness factor, (2) level energy, kev
* Sum $J_{13} + J_{14} + J_Z = 2.178$. ** Sum of three lines $\alpha_x + \alpha_y + \alpha_{15}$.

Legend to Table 2: γ-transition energies (kev) of Pa^{233} obtained with (1) β-spectrometer, (2) proportional counter, (3) γ-spectrometer (4) multipolarity.

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S/056/62/043/003/010/063
B125/B102

AUTHORS: Baranov, S. A., Kulakov, V. M., Zelenkov, A. G., Shatinskiy, V. M.

TITLE: Investigation of α-decay of Am^{241}

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 3(9), 1962, 795 - 799

TEXT: Alpha decay of Am^{241} was studied with a double focusing α-spectrograph. At 4900 - 5560 kev more than 18 fine structure α-ray groups of Am^{241} were ascertained, most of them for the first time. The sources were made by sputtering americium nitrate onto a thin film of aluminum oxide. Their effective areas were 0.25; 0.5 and 1.5 cm^2 with $\leq 2 \mu g/cm^2$. Most of the lines are of a complex character. In α-decay of Am^{241} all known levels of Np^{237} are excited with significant probability. What are called favorable α-transitions produce the most strongly developed level band 5/2 - [523]. The α-transitions to Np^{237} levels with the energies 327, 369 and 372 kev

Card 1/2

Investigation of α-decay of Am^{241}

were observed for the first time. The rotational band is more or less certainly to be identified with k = 1/2. There are 2 figures and 1 table.

SUBMITTED: April 6, 1962

Table. Fine structure of the α-spectrum of Am^{241}.

Legend: (1) α-group; (2) energy of the α-particles in kev; (3) intensity; (4) coefficient of forbiddenness; (5) level energy in kev.

(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
α_0	5543	0,25	910	0	α_8	5242	$2,4\cdot10^{-3}$	170	306
α_1	5510	0,12	1300	32,5	α_9	5222	$1,3\cdot10^{-3}$	240	327
α_2	5584	86,0	1,3	59,5	α_{10}	5192	$6\cdot10^{-4}$	330	357
α_3	5468	$<0,04$	—	76,5	α_{11}	5180	$9\cdot10^{-4}$	180	369
α_4	5442	12,7	4,7	102,5	α_{12}	5176	$3\cdot10^{-4}$	500	372
α_x?	5416	$\sim10^{-3}$	—	129?	α_{13}	5155	$7\cdot10^{-4}$	170	395
α_5	5387	1,33	21	158	α_z?	5137	$3\cdot10^{-4}$	280	413?
α_6	5320	$1,5\cdot10^{-2}$	790	226	α_{14}	5113	$4\cdot10^{-4}$	160	437
α_y?	5291	$1\cdot10^{-4}$	8000	256?	α_{15}	5099	$7\cdot10^{-4}$	70	452
α_7	5277	$5\cdot10^{-4}$	1300	270	α_{16}	5093	$3\cdot10^{-4}$	160	458
α_7'	5272	$3\cdot10^{-4}$		275?	α_{17}	5086	$3\cdot10^{-4}$	150	464

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AI120
S/056/62/043/004/002/061
B102/B186

AUTHORS: Baranov, S. A., Kulakov, V. M., Belen'kiy, S. N.

TITLE: Fine structure of Pu^{239} α-radiation

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1135 - 1139

TEXT: A very careful study was made of the α-decay of Pu^{239}, using a magnetic α-spectrometer, in order to complete and improve the U^{235} nuclear level scheme. When investigating the Pu^{239} spectrum attention was limited to the fine-structure α-groups within the 4600-5200 kev range having intensities $\eta \geq 2 \cdot 10^{-6}$. The 5495.0 kev α_0-group of Pu^{238} was taken as a standard. More than 20 α-groups of low intensity were found, some being complex. The nuclear level scheme (Fig. 2) was constructed from the data got in five series of tests (α-particle energy, intensity, forbiddenness, level energy). Apart from initial determinations of level characteristics, most of the α-groups mentioned were here observed for the first time. A new rotational band $5/2^+$ [633] is assumed to exist. The α-transition to the U^{235} ground state could not be separated from the α_0'-transition to the

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S/056/62/043/004/002/061
B102/B186

Fine structure of ...

isomeric state of U^{235} ($T_{1/2}$ = 26 min, 1/2 + 1/2[631]). An α-transition to a level of ~46 kev ($3/2^-$) as found by Newton (Nucl. Phys. 3, 345, 1957) was not observed. The level scheme of Fig. 2 is assumed to be still incomplete, as some α-groups such as the 4980, 4873, and 4830 groups have at least two components. There are 2 figures and 1 table.

SUBMITTED: April 6, 1962

Card 2/A2

ACCESSION NR: AP4009099 S/0056/63/045/006/1811/1818

AUTHORS: Baranov, S. A.; Kulakov, V. M.; Shatinskiy, V. M.

TITLE: New data on Alpha decay of americium isotopes

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 45, no. 6, 1963, 1811-1818

TOPIC TAGS: americium, americium 241, americium 243, americium alpha decay, americium 241 fine structure, americium 243 fine structure, americium alpha spectrum, neptunium level scheme, rotational band, octopole level, odd even nucleus

ABSTRACT: Continuing earlier studies of the energy levels of Np^{239} through investigations of the alpha decay of Am^{243} (ZhETF v. 43, 795, 1962), the authors effected a considerable reduction in the scattered particle background and also measured the low energy Am^{241} alpha spectrum (~4650-5150 keV) with an energy resolution improved by a factor 1.5. New α groups, some belonging to Am^{243}, were discovered by analyzing the α spectra. Possible identifications of newly dis-

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ACCESSION NR: AP4009099

covered Np^{239} and Np^{237} energy levels are discussed. The existence of new $3/2^-$ [521] and $3/2^+$ [651] rotational bands are suggested, and some levels are assigned to the octopole class in the schemes of these odd-even nuclei. "In conclusion we wish to thank N. I. Aleshin, A. A. Arutyunov, Yu. N. Dmitriyev, and K. I. Merkulova, who assisted with the measurements, A. P. Smirnov-Averin for furnishing the Am^{243} sample, and L. V. Chistyakov and G. I. Khlebnikov for the careful supplementary removal of the impurities from the americium samples." Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: None

SUBMITTED: 13Jun63 DATE ACQ: 02Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 003 OTHER: 007

Card 2/2

BARANOV, S. A.; GADZHIYEV, M. K.; KULAKOV, V. M.; SHATINSKIY, V. M.

"The investigation of Pu^{241} alpha decay."

report submitted for Intl Conf on Low & Medium Energies Nuclear Physics, Paris, 2-8 Jul 64.

Kurchatov Inst, Moscow.

BARANOV, S.A.; GADZHIYEV, M.K.; KULAKOV, V.M.; SHATINSKIY, V.M.

Alpha spectrum of Pu^{241} and the levels of the U^{237} nucleus. (MIRA 18:5)
IAd. fiz. 1 no.4:557-561 Ap '65.

KULAKOV, V.M., inzh.

Low-capacity air turboexpander with aerostatic bearings. [Trudy] MVTU no.95:105-122 '60. (MIRA 14:8)
(Turbomachines)

KULAKOV, V.M., inzh.

Number of blades in impellers of turbocompressors. [Trudy] MVTU no.75:48-61 '58. (MIRA 11:10)
(Blades) (Compressors)

KULAKOV, V. M.

Cand Tech Sci - (diss) "Small air-driven pipe engine /trubodetander/ on air-static supports." Moscow, 1961. 21 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Inst of Chemical Machinery Construction); 200 copies; price not given; (KL, 6-61 sup, 219)

KULAKOV, V.M., inzh.

Calculating thin-walled cylinders for stability in the presence of axial and eccentric compression or pure flexure. Khim. i neft. mashinostr. no.1:22-24 Jl '64. (MIRA 17:12)

KULAKOV, V.M.

Designing rigidity rings for durability. Mash. i neft. obor. no.2:25-27 '64. (MIRA 17:8)

1. Voronezhskiy filial Gosudarstvennogo proyektnogo i nauchno-issledovatel'skogo instituta promyshlennosti sinteticheskogo kauchuka.

KULAKOV, V.M., kand.tekhn.nauk

Design of aerostatic axle bearings with internal nozzle balancing. Khim. mashinostr. no.3:20-26 My-Je '64. (MIRA 18:1)

L 1932-65 EWT(m)/EPF(c)/EWA(d)/EWP(t)/EWP(b) Pr-4 IJP(c)/RAEM(c)/RAEM(t)/
AEDC(a)/SSD/AFWL/ASD(a)-5/AS(mp)-2/AFMDC/ASTR MJW/JG
ACCESSION NR: AP4049176 S/0314/64/000/005/0008/0010

AUTHOR: Kulakov, V.M., (Candidate of technical sciences)

TITLE: Experience in the design of a low-temperature helium turbo-expander

SOURCE: Khimicheskoye i neftyanoye mashinostroyeniye, no. 5, 1964, 8-10

TOPIC TAGS: cryogenics, helium, turbo-expander helium turbo-expander, low temperature turbo-expander, helium production

ABSTRACT: In the Problemnaya laboratoriya glubokogo kholoda MVTU im. Baumana (Laboratory of Deep-Freeze Problems of the MVTU), a helium turbo-expander with a capacity of 160 kg/hr, designed for an initial gas temperature of 40K and a pressure drop of 7 to 2.5 atm. (adiabatic temperature drop about 15 Cal/kg), was tested. For maximum of efficiency, the turbo-expander had a designed speed of about 130,000 rpm. The bearings had helium gas lubrication at a pressure of about 6.5-7 atm and 270-260K. The 1-kg rotor had an actual speed of 60,000-65,000 rpm, this being half the value of the designed speed. Therefore, the efficiency was lower. The design of the turbo-expander is illustrated in Fig. 1 of the Enclosure. The shaft has two cantilevers. The impeller is on the left cantilever and the gas brake is on the right. The impeller at the input side has a 52 mm diameter with 14 vanes at angles of 24 degrees. The number of vanes at

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ACCESSION NR: AP4049176

the discharge side is half as many at angles of 35 degrees. The impeller is made of anodized dural. The bearings consist of two radial and one double-action axial supports. The shaft is made of 1Kh18N9T steel. The turbo-expander is mounted in a cylindrical block with powder-vacuum insulation. The speed of the machine was measured by a magnetic meter. The pick-up unit is a steel nut encircled by an electromagnet. This turbo-expander was used in the helium production unit of the MVTU. Fig. 2 of the Enclosure shows the characteristics of the turbo-expander in the form of the relationships between the adiabatic efficiency, degree of reactivity and the peripheral speed coefficient. The actual efficiency was 0.53 due to the lower speed. The best way of increasing the speed is by the use of a small piston compressor on the supply line. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 02 SUB CODE: IE, PR

NO REF SOV: 000 OTHER: 000

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ACCESSION NR: AP4049176

ENCLOSURE: 01

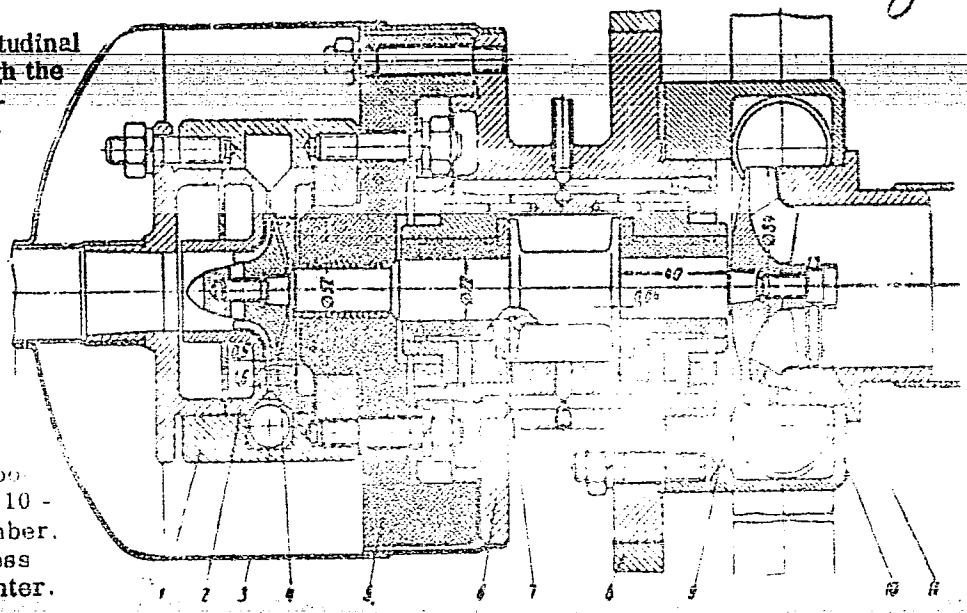

Fig. 1. Longitudinal section through the helium turbo-expander: 1 - brass frame, 2 - 18-nozzle control device, 3 - housing, 4 - 14-blade [illegible] 5 - [illegible] insulation [illegible] 9 - turbo compressor, 10 - circular chamber, 11 - contactless magnetic counter.

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ACCESSION NR: AP4049176

ENCLOSURE: 02

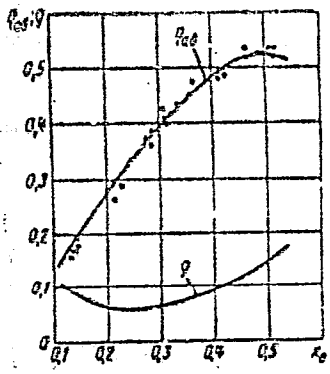

Fig. 2. Characteristics of the helium turbo-[illegible]xpander.

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KULAKOV, V.M.

Calculating the housing of steel heat exchangers. Mash. i neft. obor. no.10:19-20 '64 (MIRA 18:1)

1. Voronezhskiy filial Gosudarstvennogo proyektnogo i nauchno-issledovatel'skogo instituta promyshlennosti sinteticheskogo kauchuka.

EWT(d)/EWT(l)/EWI(m)/EWP(w)/EPF(c)/EEC(k)-2/EPF(n)-2/EWA(d)/EPR/T/EWP(t)/
Pc-4/Pr-4/Pu-4 IJP(c)/RPL JD/WW/JW S/

ACCESSION NR AM5003777 BOOK EXPLOITATION

Aleksey Mikhaylovich; Butkevich, Konstantin Stefanovich; Golovintsev, [illegible] Grigor'yevich; Kolakov, Viktor Mikhaylovich; Marfenina, Irina Vasil'yevna; Mikulin, Yevgeniy Ivanovich; Stolper, Mikhail [illegible]

Cryogenic engineering (Tekhnika nizkikh temperatur), Moscow, Izd-vo "Energiya", 1964, 447 p. illus., bibliog., fold. diagrs. (in pocket). Errata slip inserted. 5,500 copies printed.

TOPIC TAGS: cryogenics, cryogenic equipment, liquid hydrogen, liquid helium

PURPOSE AND COVERAGE: The book examines the theoretical principles of low-temperature engineering, describes the design of deep-cold equipment, and presents the methodology for calculating them with data required for design. Special attention is devoted to the new problems of low-temperature engineering which have not yet been covered sufficiently in the literature. They include: the development of low temperatures, classification and analysis of deep-cold cycles for obtaining liquid and gaseous products and cooling at a temperature level below 20 K. The methodology of designing effective heat exchange and separating equipment and piston and turbine machines is presented. The book contains a large amount of handbook and factual material. It can be a useful

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L 49200-65
ACCESSION NR AM5003777

aid for researchers and engineers and as a guide for students and graduate students specializing in cryogenic engineering.

TABLE OF CONTENTS [abridged]:

SUBMITTED: 15Oct64 SUB CODE: GP, TD

NO REF SOV: 209 OTHER: 113

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KULAKOV, V.M., kand. tekhn. nauk

Designing a low-temperature helium turboexpander. Khim. i neft. mashinostr. no.538-10 N '64 (MIRA 18:2)

KULAKOV, V.N.; VARFOLOMEYEV, D.F.; BONDARENKO, M.F.; KOTOVA, V.N.; AKHMETOV, I.G.; KOLYCHEV, V.M.; NOSAL', G.I.; KIVA, V.N.; PANKRATOVA, M.F.; KRUGLOV, E.A.; SHMELEV, A.S.; SHABALIN, I.I.; SHIRMUKHAMETOV, O.A.; ISYANOV, I.Ya.; RATOVSKAYA, A.A.; VAYSBERG, K.M.

Technology of the production of naphthalene from the refining products of eastern oils. Nefteper. i neftekhim. no. 4:30-33 '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut neftekhimicheskikh proizvodstv i ordena Lenina Ufimskiy neftepererabatyvayushchiy zavod.

[illegible]/53-58-3-28/3

[illegible], A. S., Kolokov, V. N.

Continuous Semicoking of the Bogghead of Olenek on Movable Chambers (Nepreryvnoye polukoksovaniye olenekskogo bogkhеda na podvizhnykh reshetkakh)

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 104-107 (USSR)

ABSTRACT: The dry distillation of easily sintering fuels is still difficult. On a heating (300-450°) they pass into plastic state. The viscous mass formed can easily stick together or fuse, and can stick to the shaft of the furnace in continuous processes. The preventive measures, as previous oxidation or additions of minerals, decrease the yield of the primary tar or lead to reagent losses that can never again be made up (Refs 1-4). The investigations of the authors outlined ways of a completely new scheme for the processing of such fuels. The large amount of checker present can fulfill the function of a heat carrier in the solid process, in some cases that of a catalyst, and can at the same time prevent the sintering of the fuel. This method may also be applied to nonfusible fuels that have a low

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Laboratory Semicoking of the Borhead of Olenek on Movable Checkers

mechanical strength and thermal stability, as well as to brakwheat coal. Thus, conditions for their more economical use can be prepared. The experiments were carried out on a laboratory apparatus (Fig 1) with crushed boghead and metal balls (weight ratio 1 : 20-25). The heating amounted to 500-550°, the pressure applied was: a) 1 atmosphere absolute pressure, b) 5 kg/cm^2, c) 10 kg/cm^2. It was proved that the increase in pressure to 10 kg/cm^2 increased the amount of the light fractions (up to 200° boiling point) in the primary tar from 30.2 to 50% (Tables 3,4). Olefines and hydrogen decrease in the gas, whereas saturated hydrocarbons increase. This may be explained by the redistribution of hydrogen in the semi coking products. It must be assumed that in a corresponding equipment of the apparatus this method can produce tars with a relatively small specific weight directly in the furnaces operating under pressure. This new method widens the range of coal sorts suited for semicoking, and offers new additional aspects of the processing of big stocks of easily sintering coals. There are 1 figure, 4 tables, and 8 references, 7 of which are Soviet.

SOV/153-58-3-28/30

Continuous Semicoking of the Doghead of Olenek on Movable Checkers

AUTHOR: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov), Kafedra neftekhimicheskogo sinteza i iskusstvennogo zhidkogo topliva (Chair of Petroleum Chemical Synthesis and Synthetic Liquid Fuels)

PUBLISHED: September 25, 1957

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SOV/20-123-5-33/50

5(4)

AUTHORS: Rapoport, I. B., Kulakov, V. N.

TITLE: On the Problem of the Semiconductor Properties of Iron-Copper Catalysts of Synthesis and of the Activating Effect of an Alkaline Promotor (K voprosu o poluprovodnikovykh svoystvakh zhelezo-mednykh katalizatorov sinteza i aktiviruyushchem deystvii shchelochnogo promotora)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 5, pp 887-890 (USSR)

ABSTRACT: According to the results of some previous papers (Refs 6, 7), there is a direct connection between the electrical conductivity and the activity of some catalysts (for example NiO). The authors assume that there must be a direct connection between the electric conductivity and the activity also in the case of a Fe-Cu-catalyst for the synthesis of oxygen-containing compounds and hydrocarbons from CO and H_2. In this case, the activating effect of the alkaline promoting agent must consist of the increase of the catalyst in electrical conductivity. The present paper deals with the results of the experimental investigations which were carried out to prove

Card 1/3

the above-mentioned assumptions. Carrying out of the experiments is discussed in short. Non-reduced Fe-Cu catalysts even at 230° have no noticeable electric conductivity and their resistance (for any temperature) was higher than 1,000,000 Ω. The resistance of the reduced catalyst samples, however, decreases with increasing temperature according to an exponential law. This dependence (which is characteristic of semiconductor materials) shows that reduced Fe-Cu catalysts for synthesis are typical semiconductors. Their activity increases with decreasing resistance and, therefore, with increasing electric conductivity. According to the results of this paper, there is a direct connection between the electric conductivity and the activity of iron copper catalysts in synthesis reactions. A diagram shows the influence of the potash content in the catalyst on its resistance and activity at 210°. The introduction of 0.5% potash increased the electric conductivity of the catalyst 1.5 times. A further increase in the K_2CO_3 content reduced the resistance and increased the activity of the catalyst. The promoting effect of potash (which is an acceptor impurity) can be explained by

On the Problem of the Semiconductor Properties of Iron-Copper Catalysts of Synthesis and of the Activating Effect of an Alkaline Promotor

SOV/20-123-5-33/50

its influence upon the increase of the electric conductivity of the catalyst. There are 3 figures, 1 table, and 11 references, 7 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva (All-Union Scientific Research Institute for Petroleum and Gas Refining and for the Production of Synthetic Liquid Fuel)

PRESENTED: July 17, 1958, by B. A. Kazanskiy, Academician

SUBMITTED: May 23, 1958

Card 3/3

5(3)
AUTHORS: Kochetkov, N. K., Nifant'yev, E. Ye., Kulakov, V. N.

SOV/20-125-2-24/64

TITLE: Synthesis of β-Ketomercaptals (Sintez β-ketomerkaptaley)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2, pp 327-329 (USSR)

ABSTRACT: The preparative use of β-ketoacetals (Refs 1, 2), which can be obtained readily and with good yields from the interaction with alcohols and glycol of β-chlorovinylketones in an alkaline medium, is rendered difficult by their very marked tendency towards hydrolysis in acid media. For this reason, the synthesis of the sulfurous analogues of the β-ketoacetals, i. e. of the substances mentioned in the title, was attempted. It was known that the mercaptal group is sufficiently stable in the acid medium (Ref 3). In view of the existing difficulties in the synthesis of oxy-methylene-ketones (initial substances), the authors have developed a convenient general synthesis method for β-ketomercaptals by means of ketovinylization of mercaptans (yields 50-90%). This reaction occurs quite readily in an aqueous solution in the presence of potash. As in the cases of the alcohols and of glycol (Refs 1, 2), and unlike

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the processes taking place in the cases of the phenols (Ref 5) and thiophenols (Ref 6), the reaction does not stop after the substitution of the chlorine atom in the chlorovinylketones, but is completed by the attachment of the second mercaptan molecule to the double bond. This is how mercaptal is formed. This reaction has a general character. On the one hand, this reaction is entered into by β-chlorovinylketones both with aliphatic and with aromatic radicals, on the other hand it is entered into by both monatomic and diatomic mercaptans. For this purpose, the sulfurous analogue of ethylene glycol, 1,2-ethane-dithiol (Ref 7) appears most appropriate. The aliphatic β-ketomercaptals thus produced are stable oily liquids, their analogues with aromatic radicals are solid, well crystallizable substances. The ketomercaptals enter into such reactions as are typical of the β-ketoaldehydes, which sufficiently proves their structure. They oxidize readily into the corresponding disulfones (with perhydrol in HCl, according to reference 8). These disulfones have a marked tendency towards hydrolytic decomposition in an alkaline medium. These reactions can be of interest for the production

Synthesis of β-Ketomercaptals SOV/20-125-2-24/64

of various oxy-methyl-ketones. The experimental part contains the usual data. There are 2 tables and 13 references, 8 of which are Soviet.

PRESENTED: December 1, 1958, by A. N. Nesmeyanov, Academician

SUBMITTED: November 29, 1958

ASSOCIATION: -

Card 3/3

ACCESSION NR: AP5002625 S/0079/64/034/008/2798/2801

AUTHOR: Likhosherstov, A. M.; Kulakov, V. N.; Kochetkov, N. K.

TITLE: Pyrrolizidine alkaloids. VII. Stereoisomeric transformation in the series of pyrrolizidinecarboxylic-1 acids

SOURCE: Zhurnal obshchey khimii, v. 34, no. 8, 1964, 2798-2801

TOPIC TAGS: isomerization, carboxylic acid, hydrochloric acid

Abstract: The isomerization of the heliotridane system to the pseudoheliotridane system was investigated as a means of synthesis. It was found that pyrrolizidinecarboxylic-1 acids themselves readily undergo such epimerization in the presence of concentrated hydrochloric acid. Thus a new means of conversion from derivatives of the heliotridane group to derivatives of the pseudoheliotridane group was developed, and was found to be suitable both for racemic and for optically active purolizidinecarboxylic-1 acids. Orig. art. has 1 formula and 1 table.

Card 1/2

ACCESSION NR: AP5002625

ASSOCIATION: Institut farmakologii i khimioterapii Akademii meditsinskikh nauk SSSR (Institute of Pharmacology and Chemotherapy, Academy of Medical Sciences, SSSR)

SUBMITTED: 27Jun63 ENCL: 00 SUB CODE: GC, OC

NO REF SOV: 006 OTHER: 004 JPRS

Card 2/2

LIKHOSHERSTOV, A.M.; KULAKOV, V.N.; KOCHETKOV, N.K.

Pyrrolizine alkaloids. Part 7: Stereoisomeric transformations in the pyrrolizine-1-carboxylic acid series. Zhur. ob. khim. 34 no.8:2798-2801 Ag '64. (MIRA 17:9)

1. Institut farmakologii i khimioterapii AMN SSSR.

NIFANT'YEV, E.Ye.; KULAKOV, V.N.

Certain reactions of β-ketomercaptals. Zhur. org. khim. 1 no.11:1955-1959 N '65. (MIRA 18:12)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

GRITSKO, G.I.; SHALAUROV, V.A.; KULAKOV, V.N.

Investigating with the use of models the bearing pressure in mining thick, steeply pitching seams. Fiz.-tekh. probl. razrab. pol. iskop. no.5:160-162 '65. (MIRA 19:1)

1. Institut gornogo dela Sibirskogo otdeleniya AN SSSR, Novosibirsk.

KULAKOV, V.P., inzhener-podpolkovnik

Closely anticipating the length of time for the bomb to fall. Vest.Vozd.Fl. no.7:54-56 Jl '60.
(MIRA 13:7)

(Bombing, Aerial)

KULAKOV, V.R.; PASHKIN, V.V.

Universal mandrel for milling machines for side surface machining of parts. Rats. predl. na gor. elek rotransp. no.9:48-49 '64. (MIRA 18:2)

1. Depo im. Smirnova Tramvayno-trolleybusnogo upravleniya Leningrada.

DITERIKHS, F.M.; KULAKOV, V.S.; SVYATLOVSKIY, A.Ye.; ZAVARITSKIY, A.N., akademik, glavnyy redaktor; KULAKOV, V.S. geolog; TROTSKIY, A.N. khimik.

Parasitic craters of Klyuchevskaya Sopka, arising in 1932. Trudy Kamch. vulk.sta. no.2:3-23 '48. (MLRA 6:5)

1. Kamchatskaya vulkanologicheskaya stantsiya. (Klyuchevskaya Sopka)

KULAKOV, V.S.

AST-2 automatic responder for ST-35 apparatus. Avtom. telem. i sviaz' 4 no.9:12-15 S '60. (MIRA 13:9)

1. Starshiy elektromekhanik TSentral'noy stantsii svyazi Ministerstva putey soobshcheniya.

(Telegraph)

KISELEV, P.I., kand. tekhn. nauk.; KULAKOV, V.T., inzh.; PETROV, V.M., inzh.; SIDOROV, P.A., inzh.; SHIRSHOV, V.P., inzh.

Improvements in ball mills. Elek. sta. 29 no.10:15-18 O '58. (MIRA 11:11)
(Milling machinery)

KULAKOV, V.T.

Training of drawing teachers. Politekh.obuch. no.3:72-78 Mr '59.
(MIRA 12:4)

1. Moskovskiy gorodskoy pedagogicheskiy institut im. V.P. Potemkina.
(Teachers, Training of) (Drawing--Instruction)

SLADKOV, S.P.; KULAKOV, V.V.

"Sirius" gas water heater with closed firebox and with multiple outlets for hot water. Sbor. trud. NIIST no.11:175-190 '62
(MIRA 18:1)

SLADKOV, S.P.; KULAKOV, V.V.

Household gas stoves for built-in kitchen equipment. Sbor. trud. NIIST no.14:65-76 '63.

(MIRA 17:10)

KAZ'MIN, V.G.; KULAKOV, V.V.

Ophiolite formation of northwestern Syria. Izv.vys.ucheb.zav.; geol. i razv. 8 no.2:3-14 F '65. (MIRA 18:3)

1. Vsesoyuznyy aerogeologicheskiy trest.

POSYPAYKO, V.I., doktor khim.nauk (Moskva); KORETS, G.M. (Kislovodsk); PISMANNIK, A.S. (Moskva); KAZAKOV, D.T. (Vladimir); KULAKOV, V.Ye.; IL'IN, G.S., doktor biolog.nauk; NEYFEL'DT, I.A., kand.biolog.nauk

Books. Priroda 55 no.1:12,49,109,111-113 Ja '66.
(MIRA 19:1)

1. Leningradskiy pedagogicheskiy institut im. A.I.Gertsena (for Kulakov). 2. Zoologicheskiy institut AN SSSR, Leningrad (for Neyfel'dt).

VERESHCHAGIN, N.M. (Moskva); SEMIKHATOVA, N.B. (Moskva); KULAKOV, V.Ye.; YAKOVLEV, Yu.Ya. (Moskva); PONOMAREV, D.N. (Moskva)

Books. Priroda 54 no.10:39,66,103,122-124 '65.

(MIRA 18:10)

1. Leningradskiy pedagogicheskiy institut im. A.I.Gertsena (for Kulakov).

MOKIYEVSKIY, O.B., kand. biolog. nauk; KULAKOV, V.Ye.; SMUGLYY, S.I. (Moskva); ABRAMOV, L.S. (Moskva); ALEKSEYEV, A.I., kand. geograf. nauk (Moskva); GODER, N.M., kand. filosof. nauk (Moskva)

Books. Priroda 54 no.6:34, 47, 111-114 Je '65.
(MIRA 18:6)

1. Institut okeanologii AN SSSR, Moskva (for Mokiyevskiy). 2. Leningradskiy pedagogicheskiy institut im. A.I. Gerstena (for Kulakov).

KULAKOV, Ye.; MAMAYEV, K.

Protecting ornamental trees and shrubs from pests. Zhil.-kom. khoz. 10 no.7:20-21 '60. (MIRA 13:10)
(Moscow Province--Trees--Diseases and pests)

KULAKOV, Ye.A.

Purification of waste waters from wool-processing plants.
Vod. i san. tekh. no.8:23-26 Ag '58. (MIRA 11:9)
(Wool industry) (Sewage--Purification

KULAKOV, Ye. A.: Master Tech Sci (diss) -- "The purification of the waste waters from factories engaged in the primary processing of wool". Moscow, 1959. 19 pp (Acad Construction and Architecture USSR, All-Union Sci Res Inst of Water Supply, Sewerage, Hydraulic Structures, and Engineering Hydrogeology VODGEO), 150 copies (KL, No 7, 1959, 124)

KULAKOV, Ye.A.

Methods of extracting wool grease from wool scouring waste waters.
Tekst.prom. 19 no.4:26-29 Ap '59. (MIRA 12:6)
(Wool fat) (Industrial wastes) (Flotation)

MONGAYT, I.L.; KULAKOV, Ye.A.; ISHKHANOVA, Ye.B.; VANDYUK, N.V.

Biological purification of waste water from synthetic fiber plants.
Ochis. stoch. vod. no.3:154-166 '62. (MIRA 16:5)
(Industrial wastes—Purification)

KULAKOV, Ye. P.

Protecting landscape plantations in towns and settlements.
Zashch. rast. ot vred. i bol. 5 no.5:14-16 My '60.
(MIRA 16:1)

(Moscow Province—Landscape gardening)
(Moscow Province—Plants, Protection of)

CA

15

The formation of ferrous iron and the peculiarities of the phosphate regime in sod-podzolized soils. S. P. Yarkov, P. V. Kulakov, and I. S. KauricheV. *Pochvovedenie* (Pedology) 1950, 460-75.—Soils in jars were adjusted to 60 and 100% H_2O-holding capacity and incubated at 5, 15, and 30° for 12 days. The FeO content in soln. per 100 g. of soil at the 60% moisture content was 0.293 mg. at 15°, and at 30° 0.491 mg. With 100% moisture, the FeO content at 5° was 1.779, at 15° 29.90, and at 30° 145.0 mg. per 100 g. of soil. The E_h value did not change much at 60% H_2O, but at 100% it was 0.480 at 5°; at 15° 0.577; at 30° 0.043. In the presence of $NaNO_3$ the FeO decreased at satn. as the NO_3 content was increased. In the presence of sugars the presence of $NaNO_3$ did not prevent the formation of FeO. Freezing induces the soly. of Fe_2O_3. Freshly pptd. Fe_2O_3 upon freezing or drying decreases in soly. Under conditions of satn. the P_2O_5 content increases as shown by a 0.5 N CH_3COOH extn. This increase is stepped up with the rise in temp. As the soil dries, the soly. of P_2O_5 drops. As the FeO content increases with the rise in temp., the P_2O_5 decreases much more than at lower temp. upon drying. Under conditions of gel formation large quantities of FeO are formed which in turn immobilize added sol. P_2O_5. The lab. expts. were repeated under field conditions and the trends were the same. I. S. Jolle

1951

CHIZHEVSKIY, M. G., KULAKOV, YE. V.

Fertilizers and Manures

Application of organic and mineral fertilizers at the same time. Pochvovedenie, No. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October, 1952~~1953~~. Unclassified.

KULAKOV, Ye.V.;MERSHIN, A.P.;PANOV, I.P.;PODDUBNYY, N.N.;ZENIN, A.A.;KOPTEVA, Z.F.

Fertility of virgin and waste lands. Zemledelie 4 no.10:28-36 O '56. (MLRA 9:11)
(Soil fertility)

GROMYKO, Ivan Dement'yevich; KULAKOV, Yevgeniy Vasil'yevich; BREZANOVSKAYA, L. redaktor; YELAGIN, A., tekhnicheskiy redaktor.

[Progressive practices in bringing virgin lands under cultivation] Peredovoi opyt osvoeniia tselinnykh zemel'. Moskva, Gos.izd-vo kul'turno-prosv.lit-ry, 1957. 65 p. (Bibliotechka v pomoshch' lektoru, no.5) (MLRA 10:6)

(Reclamation of land) (Tillage)

KULAKOV, Ye.V., kandidat sel'skokhozyaystvennykh nauk.

Fertility of new and old soils in the Chernozem zone of Kazakhstan. Agrobiologiia no.1:54-60 Ja-F '57. (MLRA 10:4)

1. Moskovskaya sel'skokhozyaystvennaya akademiya imeni K.A. Timiryazeva i Pochvenno-agronomicheskiy muzey imeni V.R. Vil'yamsa.
(Kazakhstan--Soil fertility)

BUSHINSKIY, V.P., akademik; GROMYKO, I.D., kand. nauk; KOTOVRASOV, I.P., kand. nauk; KULAKOV, Ye.V., kand. nauk; MERSHIN, A.P., kand. nauk; PANOV, N.P., kand. nauk.

Proper utilization of waste and virgin lands in Kazakhstan. Dokl. TSKhA no.28:5-14 '57. (MIRA 11:4)
(Kazakhstan--Reclamation of land)

KULAKOV Ye. V.

GROMYKO, I.D., kand. nauk; KOTOVRASOV, I.P., kand. nauk; KULAKOV, Ye.V., kand. nauk; MERSHIN, A.P., kand. nauk; PANOV, N.P., kand. nauk.

Crop rotations and the cultivation of virgin lands in northern provinces of Kazakhstan. Dokl. TSKhA no.28:43-51 '57. (MIRA 11:4)
(Kazakhstan--Agriculture)

Cultivated Plants, Grain Crops

ABS. JOUR. : Ref Zhur-Biologiya, No. 5, 1959, No. 20381

AUTHOR : Gromyko, I.D.; Kotovrasov, I.P.; Kuleshov, Ye.V.;*
INST. : Moscow Agric. Acad. im. K.A. Timiryazev
TITLE : Crop Rotation and the Cultivation of Virgin Land in the Northern Oblasts of Kazakhstan.
ORIG. PUB.: Dokl. Mosk. s.-kh. akad. im.K.A. Timiryazeva, 1957, vyp. 28, 54-61

ABSTRACT : In the newly reclaimed drought regions of Kazakhstan it is necessary to introduce clean fallow fields into the crop rotations. There should be no less than 15-18% 3-4 fields of grain crops, one plowed field, and one pure fallow. When highly developed agrotechnic is used in the forest and forest-steppe districts of Kazakhstan, a patch of perennial grasses is very significant in crop rotations providing hay yields totaling 7-10 centners per hectare

* Mershin, A.P.; Panov, N.P.

CARD: 1/3

CATEGORY :
SUBJECT : Cultivated Plants.

ABS. JOUR.: Ref Zhur-Biologiya, No. 5, 1959, No. 20181

Author :
INST. :
TITLE :

ORIG. PUB.:

ABSTRACT : from the dark chestnut soils of Western Kazakhstanskaya Oblast' and from the southern Chernozems of the Akmolinskaya Oblast' 18-27.1 centners per hectare. In crop rotations perennial grasses hould be seeded under a cover crop a year before the introduced patch is plowed up. To secure steady crops it is important to solve the problem of creating a deep plowing layer by means of terrace plowing to a depth of 20-22 cm. An experiment made by the Ural Selection Station shows that such

CARD : 2/3

CATEGORY : Cultivated Plants.

APS. JOUR. : Ref Zhur Biologiya, No.5 , 1959, No.17161

AUTHOR :
INST. :
TITLE :

ORIG. PUB.:

ABSTRACT : plowing secured a spring wheat crop of 15 cwt/ha, while surface plowing of virgin soil and plowing without a moldboard yielded smaller crops. A number of agrotechnical recommendations are presented. -- M.K. Doulina

CARD: 3/3

GROMYKO, I.D., kand.sel'skokhozyaystvennykh nauk; KULAKOV, Ye.V., kand. sel'skokhozyaystvennykh nauk; MERSHIN, A.P., kand.sel'skokhozyaystvennykh nauk; PANOV, N.P., kand.sel'skokhozyaystvennykh nauk

Soil fertility and crop cultivation practices on virgin lands of northern Kazakhstan. Izv. TSKhA no.4:55-76 '58. (MIRA 11:10)
(Kazakhstan--Soils)

KAURICHEV, I.S.; KULAKOV, Ye.V.; NOSDRUNOVA, Ye.M.

Formation and migration of organic iron compounds in soil. Pochvovedenie no.12:1-8 D '58. (MIRA 12:1)

1. Moskovskaya sel'skokhozyaystvennaya akademiya imeni K.A. Timiryazeva.

(Minerals in soil) (Iron compounds)

KULAKOV, Ye. V., NOSDRUNOVA, Ye. M., KAURICHEV, I. S.

"Über Die Natur Komplexer Eisen-Organischer Verbindungen Im Boden".

report submitted for the 7th Congress of International Society of Soil Science Madison, Wisconsin, 15-23 Aug 60.

GROMYKO, I.D., kand.sel'skokhozyaystvennykh nauk; KULAKOV, Ye.V., kand. sel'skokhozyaystvennykh nauk

Effect of plowing on physical, chemical and biological properties of virgin North Kazakhstan Chernozems. Izv. TSKhA no.2:85-94 '60. (MIRA 14:4)

(North Kazakhstan Province—Chernozem soils)

YARKOV, Sergey Petrovich, prof. [deceased]; prinimali uchastiye: GRECHIN, I.P., kand. sel'khoz. nauk, dotsent; KAURICHEV, I.S., kand. sel'khoz. nauk, dotsent; KULAKOV, Ye.V., st. nauchnyy sotrudnik; YARKOVA, M.A., pochvoved; TYURIN, I.V., akademik, otv. red.; PAVLOV, A.N., red. izd-va; YEGOROVA, N.F., tekhn. red.

[Soils of the forest-meadow zone of the U.S.S.R.] Pochvy lesolugovoi zony SSSR. Moskva, Izd-vo Akad. nauk SSSR, 1961. 317 p. (MIRA 14:5)

1. Kafedra pochvovedeniya Moskovskoy Ordena Lenina Sel'skokhozyaystvennoy Akademii im. K.A.Timiryazeva (for Grechin, Kaurichev) 2. Pochvenno-agronomicheskiy muzey im. V.R.Vil'yamsa (for Kulakov)

(Soils)

GROMYKO, I.D.; KULAKOV, Ye.V.; MERSHIN, A.P.; PANOV, N.P.

Soil fertility in the Virgin Territory. Pochvovedenie no.9: 48-58 S '61. (MIRA 14:10)

1. Moskovskaya sel'skokhozyaystvennaya akademiya imeni K.A.Timiryazeva.

(Virgin Territory—Soil fertility)

KULAKOV, Ye.V.; GROMYKO, I.D.

Physical characteristics and water balance of Chernozem soils in Kokchetav Province, Virgin Territory. Pochvovedenie no.10:67-77 O '62. (MIRA 15:11)

1. Moskovskaya sel'skokhozyaystvennaya akademiya im. K.A.Timiryazeva.
(Kokchetav Province--Chernozem soils)
(Kokchetav Province--Soil moisture)
(Soil physics)

GROMYKO, I.D., kand.sel'skokhoz. nauk; KULAKOV, Ye.V., kand.sel'skokhoz. nauk; MERSHIN, A.P., kand.sel'skokhoz. nauk; PANOV, N.P., kand. sel'skokhoz. nauk

Genetic characteristics of Solonetz-type and carbonate-rich Solonetz soils in the Virgin Territory [with summary in English]. Izv. TSKHA no.3:122-131 '63. (MIRA 16:9)
(Virgin Territory--Solonetz soils)

GROMYKO, I.D., kand. sel'skokhoz. nauk; KULAKOV, Ye.V., kand. sel'skokhoz. nauk; MERSHIN, A.P., kand. sel'skokhoz. nauk; PANOV, N.P., kand. sel'skokhoz. nauk

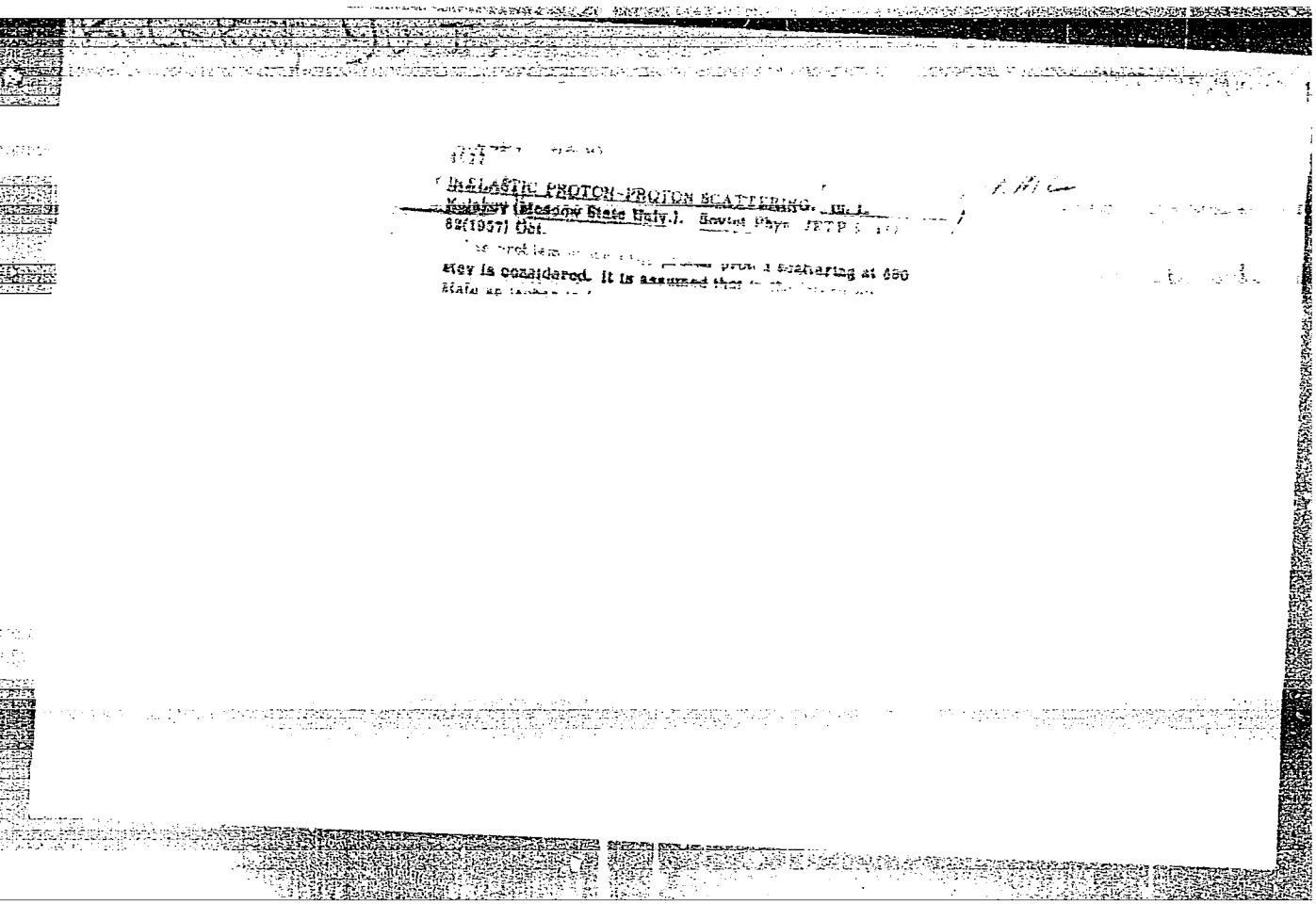
Agrochemical characteristics of the soils in the Virgin Territory and the use of fertilizers. Izv. TSKHA no.1:48-63 '64. (MIRA 17:4)

1. Kafedra pochvovedeniya Moskovskoy ordena Lenina sel'skokhozyaystvennoy akademii imeni Timiryazeva i Pochvenno-agronomicheskiy muzey.

MIKHAYLOVA, G.V.; KULAKOV, Yu.A.

Analyzing the composition of residual gases over titanium spray coatings. Prib. i tekh. eksp. 8 no.6:134-137 N-D '63. (MIRA 17:6)

1. Institut geokhimii i analiticheskoy khimii AN SSSR.



INELASTIC PROTON-PROTON SCATTERING. III.
Kvlakhov (Moscow State Univ.). Soviet Phys JETP
82(1957) Oct.
stey is considered. It is assumed that

AUTHOR: KULAKOV, YU.I.

TITLE: On the Non-Elastic Scattering of Protons by Protons. (O neupругom rasseyanii protonov na protonakh, Russian)

PA - 2974

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 3, pp 576 - 583 (U.S.S.R.)

Received: 6 / 1957 Reviewed: 7 / 1957

ABSTRACT: When investigating this scattering the auhtor bases on the experimental fact of the existence of an excited state of the nucleon, the ordinary and the isotropic spin of which is equal to 3/2. During the collision process an isobare with the mass M = 1,31 which is in the S state is assumed to be formed. (As unit of mass and energy the absolute mass unity is here selected, which corresponds to 931 m_e). The P- and D scattering of the isobare can be neglected in the case of such energies of the inciding nucleons, which are not much larger than the threshold energy of 650 MeV. Here all computations are therefore carried out for the energy 690 MeV of the inciding particles. (This energy was attained with the accelerator of the Institute for Nuclear Problems of the Academy of Science of the U.S.S.R.). The conditions given here suffice for the determination of the angular distribution of the scattered nucleons and this angular distribution contains only an arbitrary constant. Because of the finite life of the isobare (10^{-23} sec) the energy spectrums and the angular distribution of the scattered protons

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On the Non-Elastic Scattering of Protons by Protons.

must be washed out quite considerably at 690 MeV. Only at an increase of the energy of the inciding protons to 800 MeV and more does the image become more distinct.

Kinematic Computation: The author examines such collisions of two particles with the masses m_1 and m_2 in which, instead of the primary particles, two new particles with the masses M_1 and M_2 are produced. A formula is given for the energy of the new particle with the mass M_1, which is emitted at the angle φ_1. Next, the production and the decay of the isobare is discussed. 4 complexe or 8 real constants occur in the course of the description of the transition nucleon + + nucleon isobare + nucleon (in the S state). For the description of the collision between two homogeneous nucleons, however, a real parameter C suffices.
In conclusion transition to the laboratory system of the coordinates is discussed. (3 illustrations)

ASSOCIATION: Moscow State Unive rsity
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress.

Card 2/2

KULAKOV, Yu. I.

AUTHOR: Kulakov, Yu. I.,

TITLE: Note on the Application of Matrix Polynomials on the Determination of Scattering Phase Shifts (Primeneniye matrichnykh polinomov k nakhozhdeniyu faz rasseyaniya) 56-2-27/47

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 2(8), pp. 501-513, (USSR)

ABSTRACT: The present paper develops the formalism of invariant matrix polynomials $L^{s}_{l;lJ}$ for a system of particles with arbitrary spin. The matrix polynomials and their explicite form: Separating the wave functions of the initial and the final state the author passes over to an arbitrary representation in order to conduct a number of computations. The operator R occurring in this representation is expanded into generalized matrix polynomials. The author investigates the actual form of the matrix polynomials for S = 0,1/2, 1 under the limitation to processes without modification of the spin. The expressions,which are fairly complicated are given explicitly. The next two chapters deal with the expansion of the invariant operators into matrix polynomials, and the determination of the phase shifts; if the scattering matrix is known.The determination of the phase shift is reduced to the diagonalization of a matrix. The last chapter calculated the phase shifts for the scattering of antinucleons on nucleons. The special cases of sin-

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Note on the Application of Matrix Polynomials on the Determination of Scattering Phase Shifts.

56-2-27/47

gulett scattering (S = 0) and of triplett scattering are investigated in particular. There are no references and 1 figure.

ASSOCIATION: Moscow State University (Moskovskiy gos. universitet)

SUBMITTED: May 3, 1957

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Card 2/2

KULAKOV, Yu. I., Cand Phys-Math Sci -- (diss) "~~The~~ Formation of P-mesons during the collision of protons and ~~the~~ annihilation of nuclon-antinuclonic vapors." Mos, 1958. 10 pp. (Mos State Univ im M. V. Lomonosov, Phys Faculty), 100 copies. Bibliogr at end of book (18 titles). (KL, 9-58, 112)

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AUTHOR: Kulakov, Yu.I.

TITLE: The application of matrix polynomials for the description of the annihilation of N-N pairs

PERIODICAL: Referativnyy zhurnal. Matematika, no.6, 1961, 59, abstract 6B 306. (Tr.Mosk. fiz.-tekhn. in-ta, 1959, vyp.4, 102-120)

TEXT: The author considers the application of the formalism of matrix polynomials for a separation of the angular variables and for establishing a system of integral equations describing the reciprocal action and annihilation of nucleon-antinucleon pairs in connection with the theory of Tamm-Dankov. For the kernels of the system of integral equations for arbitrary l and $j=l\pm1,l$ the author obtains general expressions being suitable for the numerical integration.

[Abstracter's note: Complete translation.]

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S/057/63/033/002/003/023
B108/B186

AUTHOR: Kulakov, Yu. I.

TITLE: The magnetic field on the surface of a cylindrical conductor of elliptical cross section

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 33, no. 2, 1963, 150-153

TEXT: The magnetic field along a cylindrical conductor,

$$H_x = \iint_S \frac{2j(y-y_0)\,dx\,dy}{(x-x_0)^2+(y-y_0)^2}; \qquad (1),$$

$$H_y = -\iint_S \frac{2j(x-x_0)\,dx\,dy}{(x-x_0)^2+(y-y_0)^2}, \qquad (2)$$

is solved for a conductor of elliptical cross section in the coordinates η and ξ as shown in the figure:

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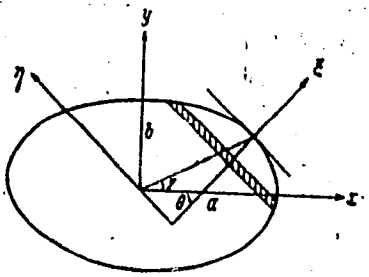

The tangential and normal components of the magnetic field are then

$$H_\tau = H_\eta = \frac{4I}{a+b}\,\frac{b^3 + a^3 \operatorname{tg}^2\varphi}{\sqrt{(b^2 + a^2 \operatorname{tg}\varphi)\,(b^4 + a^4 \operatorname{tg}^2\varphi)}}, \qquad (30),$$

$$H_\nu = H_\xi = \frac{4I}{a+b}\,\frac{ab\,(a-b)\operatorname{tg}\varphi}{\sqrt{(b^2 + a^2 \operatorname{tg}^2\varphi)\,(b^4 + a^4 \operatorname{tg}^2\varphi)}}, \qquad (31)$$

where I = πabj is the current flowing through the entire cross section of the conductor. There is 1 figure.

ASSOCIATION: Novosibirskiy gosudarstvennyy universitet, Kafedra teoreticheskoy fiziki (Novosibirsk State University, Department of Theoretical Physics)

The magnetic field on the ...

S/057/63/033/002/003/023
B108/B186

SUBMITTED: January 4, 1961

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WW/JW/JWD/H
ACCESSION NR: AP3003241 S/0040/63/027/003/0468/0473

AUTHOR: Borovskiy, Yu.Ye.; Kulakov, Yu.I. (Novosibirsk) 10 66

TITLE: Motion of systems of varying structure in the presence of variational forces

SOURCE: Prikladnaya matematika i mekhanika, v. 27, no. 3, 1963, 468-473

TOPIC TAGS: rocket, center of gravity, variational force , velocity, reaction force

ABSTRACT: The authors obtain an equation for the motion of a system of varying structure, taking into account the variational forces arising as a result of non-stationary motion of the medium and related to the change (variation) of the quantity of motion with respect to the rigid hull. They give a solution of the Okhotsimskiy problem and study the effect of variational forces on the motion of systems of varying structure with fluid as the working substance. They study the possibility of increasing the finite speed of such systems at the cost of introducing periodic displacements, by interior forces, of the center of gravity of the system with respect to the hard hull. A general expression is given for

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the variational forces arising with nonstationary motion of the medium comprising the working substance and the equal change in the quantity of motion of the system with respect to its rigid hull. From this expression it follows that the variational forces for a rocket with liquid or solid fuel are negligibly small in comparison with the reaction forces. However, there exist a series of systems in which these forces play an essential role. In conclusion the authors thank F. R. Gantmakher. Orig. art. has: 19 formulas and 6 figures.

ASSOCIATION: Institut matematiki SO AN SSSR, Novosibirskiy gosudarstvenny*y universitet (Institute of Mathematics, Novosibirsk State University, SO AN SSSR)

SUBMITTED: 27Oct62 DATE ACQ: 23Jul63 ENCL: 00

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